







	millim.
Breadth of the head across the jaws .....	16
"      "      across the base of the orbital spine ..	10
Length of the body to the commencement of the second dorsal .....	26
Base line of the second dorsal .....	6
Depth of the root of the tail .....	4.5
Diameter of the eye .....	2.5
Length of the cephalic tentacle (first dorsal) .....	9
Length of the guttural tentacle .....	23
Length of the caudal fin .....	14.5
Length of the pectorals (with the pseudobrachium) .....	5
Length from the snout to the pectorals (to the root of pseudo-brachia) .....	16

*The structure of the body* in its natural state can hardly be correctly described from this specimen, in which the whole of the belly exhibits an abnormal distension in consequence of the fish having swallowed a Scopeloid fish, the total length of which is one half longer than itself.

The head is very large, with an enormous mouth and long teeth. The body itself is short and slender, compressed, and with the heavy dependent abdominal cavity, of which the hindermost part extends far beyond the end of the vertebral column.

The greatest depth of the body is at the back of the head, and is precisely the same as the length of the head. The body itself is apparently much lower, and the root of the tail narrow and low.

A thick cephalic spine is to be found on the snout; and under the throat a long tentacle divided at the end, which undoubtedly is phosphorescent, as well as the end of the cephalic spine.

The gill-openings are so narrow that they can only be distinguished with difficulty; their openings are not much larger than the head of a pin.

*The head.*—Its appearance when viewed from the front is nearly tetrahedral, somewhat compressed, and broadest downwards. Its greatest width is across the angle of the mouth, and is about equal to the length of the intermaxillary bones. The upper profile of the head exhibits a somewhat projecting and slightly outwardly inclined spine above each eye. The breadth of the head across the base of these spines (which form the upper corners of the square when the head is seen from the front) is one third less than the breadth across the angles of the mouth (or the lower corners of the square).

The forehead in front of the orbital spines is concave, with a deep furrow leading to the end of the snout, bounded on each side by a ridge, on which also the orbital spines are projecting; the concavity is somewhat broader downwards than it is above.

There are altogether three spines on each side of the head. One orbital spine is directed upwards and slightly forwards. One spine at the back of the operculum is directed backwards; also a small spine at the back of the lower jaw sloping inwards and downwards;

the last is, however, in the uninjured specimen scarcely perceptible beyond the common skin which covers the head.

The length of the head from the end of the lower jaw to the base of the spine on the operculum is to the total length as 1 to 2·7, this measured to the end of the caudal fin, but only 1·9 in the length to the root of the caudal. Thus the head is about the same as the rest of the body without the caudal fin.

The highest part of the skull is indicated by a protuberance at the back of the head, probably formed by the point in which the *os mastoideum* (*occipit. posterius*) adjoins to the shoulder-girdle.

The mouth is enormously large, with the cleft oblique; the lower jaw is slightly longer than the intermaxillary, and has backwards a considerable width (or about  $\frac{1}{4}$  of its length).

The length of the jaws is to the total length (to the end of caudal fin) as 1 to 2·8–3·0. At the back of the lower jaw there is a spine slanting inwards and downwards, the length of which scarcely equals the orbital spines.

The eyes are well developed, although small on the whole; the lens is particularly small (about 1 millim.). The diameter of the eye is about 2·5 millim.; it is placed somewhat far forward, or a little more than two orbital diameters from the margin of the upper jaw.

The gill-covers are but incompletely ossified, but their construction cannot be properly examined in this single specimen. The operculum is present as a long styloid bone, which towards its lowest end sends out a backward-directed spine the length of which is 3 millim. (which, however, is completely enveloped in the common skin of the head).

The *præoperculum* appears to be unossified.

The gill-openings are extremely small, and are situated at a distance of about half an eye's diameter below the pectoral fins; they form a crescent-formed slit, the height of which is only 2·2 millim.

The gills are  $2\frac{1}{2}$  pairs, as the second and third branchial arches have a double series, the fourth a uniserial gill. *Pseudobranchiæ* are wanting.

The branchial arches are smooth on their inner surface, without a trace of protuberance or teeth.

The branchiostegals appear to be but five in number; and I cannot, in this little and frail specimen, discover a sixth, which may possibly exist.

The teeth are placed in a single row in each half jaw, with a distinct space between each tooth, and consist of long and slender teeth, some of which are very long, while the rest are somewhat shorter. They are finely streaked throughout their length, pointed like awls, and movable inwards, so that the long front teeth lie backwards, the side teeth inwards.

All of them are covered with a jet-black skin, the extension of which cannot with certainty be determined in this specimen; a few of the shorter teeth are still completely covered with it; but the points of long teeth have probably always been bare.

The number of teeth in each half of the jaw is 7–9, to which

should be added one or more accessory teeth, which are quite short, and are situated immediately at the base of the longest teeth; probably these accessory teeth are meant to supplant the others when these are shed or lost, which may often happen when devouring the huge prey.

In the intermaxillary, the longest teeth in front have a length of 6 millim., and are quite straight (on the left side it is not fully developed); the other teeth are shorter, not more than 3 millim. long. The total number of teeth in each intermaxillary is 8 or 9, to which must be added 2-3 accessory teeth situated at the base of the longest.

In the lower jaw the two foremost teeth (and the 4th) are particularly long, the others somewhat shorter. In each half jaw there are seven teeth, to which must be added the two accessory teeth situated at the base of the longest. The innermost tooth in the jaw is quite small.

Of the two long front teeth, the first is somewhat shorter than the second, considerably curved; its length is 4.5 millim. The second is the longest of all the teeth; it is 8 millim. in length, and is also a little curved. It is placed a little inside of the row of other teeth, and has a short tooth at its base. The fourth has a length of 5 millim., and it also has an accessory tooth; the others are shorter.

The upper pharyngeal bones have each a group of about six teeth forming two long irregular rows. The lower pharyngeals do not appear to have teeth.

The vomer has a single tooth, which, like the pharyngeal teeth, is about the length of the shorter teeth in the jaws, and is slightly curved.

*Cephalic spine.*—The first dorsal appears as a single tentacle on the forehead (the cephalic spine). Its basal element is not subcutaneous and procumbent, but erect and continuous with its distal part. When laid back its bulb reaches to the hind margin of the eyes, or just between the two orbital spines, in which position it fills up the concavity on the forehead. It is situated at the front margin of the snout. Its length is 10 millim., of which half comprises the peduncle, which is rather thick, especially towards its base, the other half the head, which forms an oblong bulb, the breadth of which is 3 millim., or about the same as the diameter of the eye.

The bulb ends in a pair of exceedingly short and slender threads, which, in a good light, can be seen to have small papilla-shaped bodies on one side, of the same kind as the papillæ on the guttural tentacle, but much smaller (probably answering to the "scales" which, according to Lütken, cover the threads of the tentacles of the Himantolophoids). The colour of this cephalic spine is jet-black as far as the middle of the bulb; its other half is white (perhaps silvery in the living specimen), as in most or all the other species of the Ceratiidæ.

*The fins.*—The second dorsal is situated far behind, close into the caudal fin, although separated from it by a distinct space. It has three single rays, which at their base are enveloped with a thick